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erable labor to read through two long descriptions, comparing them character by character, in order to find out in what respect the plants differ. By confining the descriptions to diagnoses or by giving the diagnostic characters in italics, this annoyance might easily have been avoided with great benefit to those who are to use the book.

The lichens found in Minnesota are, for the most part, those occurring throughout temperate North America, east of the Rocky Mountains. For all students in this region, Professor Fink's " Lichens of Minnesota," with its keys, its descriptions, its photographs, and last but not least its conservative spirit, must prove a work of the very greatest usefulness.

Wellesley, Mass.

POLYTRICHUM STRICTUM IN PENNSYLVANIA.

OTTO E. JENNINGS.

In the northwestern corner of Pennsylvania, near Linesville, in Crawford County, there is a great area of swampy or boggy land lying to the south of a row of morainal hills. This area collectively is known as the Pymatuning Swamp and extends with one interruption for a distance of about seventeen miles and in one place is about one mile wide.

During the last six years the writer has made repeated excursions to this swamp, studing the flora both ecologically and systematically, and a number of very interesting things, botanically speaking, are to be found there. The bog is in places a very characteristic Canadian Tamarack-Sphagnum bog (*Larix-Sphagnum* association) and in places has become southern in its relationship, with a Black Ash-Lizard Tail swamp (*Fraxinus nigra-Saururus* association).

In one place near Linesville there is a small area, not over half-an-acre in extent, where the vegetation is made up exclusively of a Cassandra-Polytrichum heath, and it was with considerable surprise and interest that the moss was found to be typical *Polytrichum strictum* Banks. (Collected May 28, 1908, O. E. Jennings.)

The occurrence here of this species of Polytrichum is noteworthy in that the species is so distinctly northern in its distribution and as far south as the northern states it is mainly restricted to rather elevated boggy alpine regions. So far as the writer is aware this species has never before been reported from either Pennsylvania or from Ohio, whose boundry line is but a few miles distant, and, furthermore, the moss occurs here at a comparatively low elevation, about 980 feet above the sea.

Carnegie Museum, August 22, 1910.

NOTES FROM EUROPE.

ANNIE LORENZ.

The following are brief notes of the writer's collecting experiences on a European trip, not undertaken primarily for botanical purposes, in the early summer of 1909.

The writer's first European botanizing was at Burgsteinfurt, a small town in Westfalen; her first walk in the Bagno, the Prinz von Bentheim's great park, yielded *Frullania dilatata* Nees, *Lophocolea bidentata* (L.) Dum. and *Metzgeria furcata* (L.) Dum. On a most entrancing heath, all heather and Sphagnum, were offered *Alicularia scalaris* (Schrad.) Corda, *Diplophylleia albicans* (L.) Trev., *Lophozia inflata* (Huds.) Howe, *Cephaloziella divaricata* (Sm.) Schiffn., *Calypogeia fissa* Raddi, and *Lophozia bicrenata* (Schmid.) Dum. was detected in a sandy ditch.

The differences and resemblances between north-western Germany and New England, particularly the White Mountains, were very interesting; this particular region was non-calcareous. *Diplophylleia albicans* here and at Iburg common and highly variable, is one of our rarest species.

Iburg, a village among the Westfalen hills, offered both kinds of substratum, the Langenberg and Freden being limestone, while the Dürnberg and Uhrberg were siliceous. The fine spruce forests of the latter had most attractive roadside ditches, full of every size of *Alicular*a *scalaris* and *Lophozia Mildeana* Gottsche, in neat little apple-green rosettes.

In Berlin, having been supplied with letters through the kindness of Mrs. Britton and Dr. Evans, the writer had a most delightful interview with Herr Warnstorf.

But the best collecting in Germany was in the Lausitzer Gebirge, at Oybin and Jonsdorf, among the curious glacier-worn sandstones of that region. The Oybin, 1500 ft. alt. is a bee-hive-shaped wooded hill some 500 ft. high, with a ruined monastery on top. On the damp north side were *Conocephalum* in fruit, *Mylia Taylori* (Hook.) S. F. G , *Sphenolobus minutus* (Crantz) St., *Lophocolea minor* Nees, *Dicranodontium longirostre* (Starke) Schimp., and queerly enough, *Odontoschisma denudatum* (Mart.) Dum. which certainly does not belong in the cracks of wet rocks. Along the brook in the spruce woods below the Oybin were *Riccardia multifida* (L.) S. F. G., *Chiloscyphus polyanthus* (L.) Corda, *Cephalozia bicuspidata* (L.) Dum., *Calypogeia Neesiana* (Massal. & Carest) C. M. Frib., *Sphenolobus exsectus* (Schmid.) St., *Lophozia incisa* (Schrad.) Dum., *Bazzania trilobata* (L.) S. F. G., this last not so common as with us.

Owing to the well-keptness of German forests, rotten-log species are rarities; occasional stumps can be found, but no well-furnished logs of the White Mountain kind. No *Ptilidium pulcherrimum* or *Cephalozia curvifolia* was seen on the entire trip. On the way up the Hochwald, 800 m., was the ubiquitous *Lophozia attenuata* (Mart.) Dum.

The next day, at Jonsdorf, we got *Mylia anomala* (Hook.) S. F. G. in a sphagnum bog, and on the damp sides of the Nonnenclunsen, a curious series of rocks, like nuns in procession, were *Lophozia ventricosa* (Dicks.) Dum., *Sphenolobus minutus* (Crantz) St., *Scapania memorosa* (L.) Dum. and *S. umbrosa* (Schrad.) Dum.

This region is not very far west of the Riesengebirge, that rightly favorite haunt of all good German bryologists.

At Rothenburg, which is in a limestone region, the stone walls along the Tauber river had a heavy covering of kalkhold mosses, *Anomodon viticu-*

losus, *Orthotrichum anomalum*, *Thuidium abietinum*, etc. but almost no hepatics, at least, nothing noteworthy.

At Innsbruck we climbed the extremely steep and hot mountain known as the Hafelekar, which is always shown in the pictures, overhanging the principal street. It is of limestone, and rather barren, the best finds being *Rhytidium rugosum* (Ehrh.) Kindb. and *Scapania aequiloba* Dum. which is all over Switzerland as well.

The writer's next collections were on the Axenstrasse, on Lake Lucerne, also hot dry limestone, and comprised *Jungermannia atrovirens* Schleich, *Pellia Fabroniana* Raddi, and *Scapania aequiloba* again.

Mt. Pilatus was more prolific, although there were still about two feet of slushy snow on it. We climbed down to the Klimsenhorn, a spur, about 6000 ft. alt.; this mountain is also limestone, as is a large part of Switzerland. Here on a damp ledge were *Lophozia Lyoni* (Tayl.) St , *Metzgeria pubescens* (Schrank.) Raddi, *Orthotrichum rufescens* (Dicks.) B. & S., *Plagiopus Oederi* (Gunn.) Limpr. The absence of Sphagna leaves a very queer impression with anyone accustomed to the White and Adirondack Mountains.

Kleine Scheidegg, 6000 ft. alt., above Interlaken, was a cold, wet limestone country. At this height, above timber line, *Lophozia lycopodioides* (Wallr.) Cogn. highly variable, was the most prominent hepatic, while the usual *Cephalozia* was *C. pleniceps* (Aust.) Lindb. Kaalaas says that this is a true rctic-alpine species. *Scapania aequiloba*, and *Lophozia Muelleri* (Nees.) Dum. were on a wet, shaly slope, while lower down, about Alpiglen station, nearly at timber line, were *Lophozia Muelleri* (Nees) Dum., *Lophocolea minor* Nees, *Chiloscyphus pallescens* (Ehrh.) Dum., *Riccardia pinguis* (L.) S. F. G., *Blepharostoma trichophyllum* (L.) Dum. which is very common on the ground in alpine regions.

At the foot of the Staubbach, a spot which felt much like the base of the Willoughby, Vermont cliffs, were *Preissia quadrata* (Scop.) Nees , *Pellia Fabroniana* Raddi, and some large *Drepanocladus*, or *Cratoneuron*, among the tufts of *Saxifraga aizoides*.

On the hill back of Mürren were *Frullania Tamarisci* (L.) Dum. in great glossy mats over the limestone boulders in the pasture, *Orthothecium rufescens* (Dicks.) B. & S. in the springy places, *Sphenolobus exsectaeformis* (Breidl.) St., on an old log, *Lophozia barbata* (Schreb.) Dum., *Grimmia Doniana* Smith, *Thuidium abietinum* (L.) B. & S., and *Leucodon sciuroides* (L.) Schwaegr.

While at Montreux, we explored the Gorges de Chauderon, a charming limestone ravine near Glion. Here were *Metzgeria furcata* (L.) Dum., *M. conjugata*, *M. pubescens*, *Lejeunea cavifolia* (Ehrh.) Lindb., *Cololejeunea calcarea* Lib. and lots of *Pedinophyllum interruptum* (Nees.) Schiffn.

Zermatt offered as much as anywhere except Chamonix, perhaps on account of our longer stay. The Gorner gorge, a place much like the Flume, supplied *Scapania Bartlingii* Nees., *Lophocolea minor*, *Metzgeria* *pubescens*, and *Lophozia Hatscheri* (Evans) St., while the beach along the Visp above the town, offered *Lophozia badensis* (Gottsche) Schiffn. in neat little tufts.

Along the path from the Riffelalp to Findelen glacier was the usual alpine limestone mixture, *Lophozia lycopodioides*, *Cephalozia pleniceps*, *Blepharostome*, *Pellia Fabroniana*, *Preissia*, *Lophozia Muelleri*, *L. incisa* (Schrad.) Dum. on old stumps. Over on the moraine in front of the glacier was *Fimbriaria fragrans* Nees.

Chamonix was the nearest like the White Mts., as it is siliceous ground, and here (as all through Switzerland) Bernet's Catalogue was quite invaluable. Our first walk, up the Brévent path, produced *Diplophylleia obtusifolia* Trevis., *Marsupella Funckii* (W. & M.) Dum. and *Nardia hyalina* (Lyell.) Carr. The path up to the Mer de Glace via the Mauvais Pas and back via Montanvert, yielded *Jungermannia spaerocarpa* Hook. *Lophozia alpestris* (Schleich.) Evans. *Lophozia Floerkii* (W. & M.) Schiffn., *Alicularia Geoscypha* De Not, *Marsupella Funckii*, besides many commoner species.

On the roof of Amiens Cathedral was a large crop of *Barbulæ*, in fine fruit, and the writer's last collection was of *Lunularia cruciata* (L.) Dum. around a spring in the garden of friends at Halstead, England.

In Paris the writer passed a most delightful afternoon at the home of M. Renauld, who has recently died. In London she had most agreeable interviews with Mr. Gepp at the British Museum, Dr. Dixon, Mr. Wright at Kew, and Dr. Braithwaite, and these form some of the pleasantest memories of the trip.

Hartford, Conn.

LICHEN NOTES No. 15.

Remarks on Some Cladonia Species.

G. K MERRILL.

Dr. J. Müller in the Regensburg Flora, 1878, p. 482 is inclined to believe that *Helopodium capitatum* Michaux Flor. Amer. Bor. II p. 329 is synonymous with *Cladonia leptophylla* (Ach.) Flk. As it is not definitely settled if it be *Cl. leptophylla* or only something that resembles it, that Wainio and others have recognized in the material sent them from this country, one wonders if the plant of Michaux may not as well be referred to *Cl. mitrula* Tuck. Floerke in his Monograph and Nylander in Synopsis seem disposed to regard the form as associable with the Cocciferae, presumably because of Michaux's indication that the apothecia were "rubiginosa-rufis," but Acharius referred the plant to that section which includes *Cl. botrytes* and *Cl. leptophylla*, both of which have light colored fruit, and seems not to have questioned Michaux's assignment of it to Helopodia. It is very probable that Acharius had no knowledge of *Helopodium capitatum* derived from an examination, prior to his work on Muhlenberg's collections. Indeed the evidence of his ever having seen the form is negative. Coemans (Clad. Achariana) states that no specimen of *H. capitatum* is to be found in the Acharian herbarium, and adds that the plant must be regarded as problematical.